

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) Apparatus for separating CO₂ from a gas stream containing CO₂ and an anaesthetic gas, the apparatus comprising a gas separation device and means for transporting the gas stream at a periodically varying flow rate through the gas separation device, the device comprising a supported carrier liquid membrane in which the carrier species is an organic base present at a concentration sufficient to provide a separation factor α (CO₂, a),

$$\text{where } \alpha (\text{CO}_2, a) = \frac{R_{\text{CO}_2}}{p_{\text{CO}_2}} \cdot \frac{p_a}{R_a}$$

wherein R represents permeation rate, p partial pressure of a gas in the feed gas stream and a an anaesthetic gas, greater than unity.

2. (Cancel)

3. (Cancel)

4. (Previously presented) Apparatus as claimed in claim 1, wherein the device comprises a supported carrier liquid membrane in which the carrier is present in a concentration of at least 4.5 mol.dm⁻³.

5. (Cancel)

6. (Currently Amended) Apparatus as claimed in claim 1, wherein the base is selected from the group consisting of diethanolamine, ethanolamine and ethylenediamine.

7. (Cancel)

8. (Cancel)

9. (Cancel)

10. (Currently amended) Apparatus as claimed in claim 1, wherein the membrane support is a porous polymer selected from the group consisting of polysulfone and polyacrylonitrile.

11. (Cancel)

12. (Currently amended) Apparatus as claimed in claim 1, wherein the membrane is a hollow fibre membrane, and is in the form of a fibre bundle.

13. (Cancel)

14. (Currently amended) Apparatus as claimed in claim 1, which [[also]] further comprises means for generating a sweep gas stream or means for providing a vacuum on a face of the membrane remote from the gas stream.

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15. (Currently amended) Apparatus as claimed in claim 14, which further comprises means for humidifying the sweep gas stream.

16. (Cancel)

17. (Cancel)

18. (Cancel)

19. (Cancel)

20. (Cancel)

21. (Cancel)

22. (Cancel)

23. (Cancel)

24. (Cancel)

25. (Cancel)

26. (Cancel)

Claims 27-34 (Canceled)

35. (Currently amended) Apparatus as claimed in claim 1, which [[also]] further comprises a second supported carrier liquid

membrane comprising the carrier species, means for transporting a sweep gas past the second membrane, a mass of carrier liquid contacting both membranes, and means for circulating carrier liquid past the membranes.

36. (Previously presented) A method of separating CO₂ from a gas stream containing CO₂ and an anaesthetic gas, which comprises transporting the gas stream at a periodically varying flow rate through the gas separation device, said device comprising a supported carrier liquid membrane in which the carrier species is an organic base present at a concentration sufficient to provide a separation factor α (CO₂, a),

$$\text{where } \alpha (\text{CO}_2, a) = \frac{R_{\text{CO}_2}}{P_{\text{CO}_2}} \cdot \frac{P_a}{R_a}$$

wherein R represents permeation rate, p partial pressure of a gas in the feed gas stream and a an anaesthetic gas, greater than unity.

37. (Currently amended) A method for separating gases in a gas stream, which comprises contacting the gas stream comprising carbon dioxide and an anaesthetic gas with a supported carrier liquid membrane in which the carrier is an organic base present in a concentration of at least 4.5 mol.dm⁻³.

38. (Cancel)

39. (Previously presented) A method as claimed in claim 37, in which the gas stream is transported at a periodically varying flow rate over the supported carrier liquid membrane.

40. (New) A method as claimed in claim 36, wherein the device comprises a supported carrier liquid membrane in which the carrier species is present in a concentration of at least 4.5 mol.dm⁻³.

41. (New) A method as claimed in claim 36, wherein the membrane is a hollow fibre membrane, and is in the form of a fibre bundle.

42. (New) A method as claimed in claim 36, which further comprises generating a sweep gas stream or providing a vacuum on a face of the membrane remote from the gas stream.

43. (New) A method as claimed in claim 42, which further comprises humidifying the sweep gas stream.

44. (New) A method as claimed in claim 37, wherein the membrane is a hollow fibre membrane, and is in the form of a fibre bundle.

45. (New) A method as claimed in claim 37, which further comprises generating a sweep gas stream or providing a vacuum on a face of the membrane remote from the gas stream.

46. (New) A method as claimed in claim 45, which further comprises humidifying the sweep gas stream.

47. (New) Apparatus for separating CO₂ from a gas stream containing CO₂ and an anaesthetic gas, the apparatus comprising a gas separation device and means for transporting the gas stream at a sinusoidally varying flow rate through the gas separation device, the device comprising a supported carrier liquid membrane in which the carrier species is an organic base present at a concentration sufficient to provide a separation factor α (CO₂, a),

$$\text{where } \alpha (\text{CO}_2, a) = \frac{R_{\text{CO}_2}}{p_{\text{CO}_2}} \cdot \frac{p_a}{R_a}$$

wherein R represents permeation rate, p partial pressure of a gas in the feed gas stream and a an anaesthetic gas, greater than unity.

48. (New) Apparatus as claimed in claim 47, wherein the means comprises a bellows ventilator.

49. (New) Apparatus as claimed in claim 47, wherein the device comprises a supported carrier liquid membrane in which the carrier is present in a concentration of at least 4.5 mol.dm⁻³.

50. (New) Apparatus as claimed in claim 47, wherein the membrane is a hollow fibre membrane, and is in the form of a fibre bundle.

51. (New) Apparatus as claimed in claim 47, which further comprises means for generating a sweep gas stream or means for providing a vacuum on a face of the membrane remote from the gas stream.

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52. (New) Apparatus as claimed in claim 51, which further comprises means for humidifying the sweep gas stream.